IN THE SPECIFICATION

On page 1, lines 22-27, please replace the original paragraph with the following amended paragraph:

To reduce or eliminate the effects of internal motion, gating techniques may be employed which utilize information about organ motion to minimize the effect of the organ motion during imaging. Gating techniques that use organ motion information to time the acquisition of imaging data are known as prospective gating techniques. Conversely, those that use organ motion information to ~~time the acquisition of imaging data~~ select from image data previously acquired are known as retrospective gating techniques.

On page 3, lines 1-8, please replace the original paragraph with the following amended paragraph:

The multi-input motion data may be used to determine one or more quiescent periods for the organ of interest corresponding to an interval of minimal absolute motion for the organ. A quiescent period may be used to determine gating points that may be used to gate the image data, prospectively and/or retrospectively, to reduce motion artifacts in the resulting image. In addition, a quiescent period may be used to derive one or more motion compensation factors which may be applied during image processing to reduce motion artifacts. Alternatively, another period of motion for the organ may be derived from the multi-input motion data, such as a particular phase of motion associated with a motion cycle or period, such as the initiation of cardiac contraction.

On page 10, lines 7-15, please replace the original paragraph with the following amended paragraph:

The non-electrical events may be detected by one or more mechanical sensors 46. In the case of multiple mechanical sensors 46, the mechanical sensors 46 may be arranged in an array or matrix format placed in or near the region of interest. Sensor arrays or configurations are possible in which the mechanical sensors 46 are arranged in a three-dimensional matrix such that the entire body surface in the region of interest is covered, such as by using a suit or wrap. Typically, in an array of mechanical sensors 46 used to measure non-electrical events, the mechanical sensors 46 are placed equidistant from each other. For instance, a δ unit of separation may be maintained between the mechanical sensors 46 in the X, Y, and/or Z directions.

On page 12, lines 5-14, please replace the original paragraph with the following amended paragraph:

Similarly, acquisition motion data 58, such as organ motion information derived from the acquired and/or reconstructed image domains, may be used to determine the motion of one or more organs. The acquisition motion data 58 may be determined from one-dimensional, two-dimensional, or three-dimensional representations of the imaged region derived from the image data. For example, organ motion may be determined in the acquired image domain after a segmentation or structure identification step. Changes in the location of the segmented structure or region may be determined in sequential image [[date]] data and equate to the motion of the organ or organs. In this manner, acquisition motion data 58 may be used to determine motion for one or more organs in the field of view of the imager 12.

On page 13, lines 4-23, please replace the original paragraph with the following amended paragraph:

The aggregate motion data 70, i.e., the motion data for each organ for which motion was detected or measured and/or for each motion sensing methodology employed, contains the multi-input motion data 72 of interest for the imaging process. Aspects of the aggregate motion data 70 may be combined and/or separated for each organ of interest or for the different motion sensing methodologies, as depicted at block 74, to derive the multi-input motion data 72 relevant for the ~~organs~~ organ or organs of interest at a given time or point in the process. The combination and/or separation procedure depicted may depend on the number of organs of interest, the techniques employed to measure motion, the coverage area of the imaging modality, the processing techniques to be employed, i.e., prospective and/or retrospective, and so forth. For example, where the motion of an organ is measured or detected by multiple motion sensing methodologies, the motion information may be combined to derive a more accurate motion characterization of the organ at a given time. Similarly, where a motion sensing methodology detects the motion of more than one organ, the information associated with each organ may be separated to better characterize the motion of the individual organs at a given time. The result of the combination and/or separation procedure 74 is one or more sets of multi-input motion data 72 which may be used for motion compensation in respective images and/or may be subsequently analyzed to obtain prospective or retrospective gating intervals for image acquisition and processing.

On page 15, lines 20-30, please replace the original paragraph with the following amended paragraph:

A quiescent period 88 that reflects the interval common to the cardiac interval of minimal motion 96 and the pulmonary interval of minimal motion 98 may thereby be derived. In the context of the present example, the quiescent period 88 represents an interval of minimal motion for all of the organs represented by the multi-input motion data 72. As one of ordinary skill will appreciate, additional quiescent periods 88 may be similarly derived. Furthermore, additional motion data for these organs and/or for other or additional organs may be included within the multi-input motion data 72. In particular, the generation and/or processing of the multi-input motion data set 72, such as in the separation/combination step [[78]] 74 and/or in the extraction step 90, can be performed for each individual organ separately, in series, in parallel, or in any order for use in subsequent processes and analyses.

On page 18, lines 11-28, please replace the original paragraph with the following amended paragraph:

Referring once again to Fig. 5, the prospective gating points determined by the multi-input motion data processing step 114 may be used to activate an imager 12 to acquire data 118 during the desired quiescent periods 88, or other period of interest, as depicted at step 116. The acquired data 118 may be reconstructed to form a set of reconstructed data 120, as depicted at step 122. The reconstructed data 122 may be further processed if desired, such as by segmentation of structure or features of interest, edge enhancement, smoothing, and so forth. An image 124 of the region of interest which contains a reduced number of motion related artifacts may be generated, as depicted at step 126. In addition, motion compensation factors 106 may be derived from the quiescent periods 88, or other ~~period~~ periods of interest, which may be applied during

data reconstruction at step 122 or image generation at step 126 to further reduce motion-related artifacts. Furthermore, image fusion may be implemented if multiple electrical and/or non-electrical sensors are employed, particularly in the context of multi-modality imaging. In such an image fusion context, motion data derived from the multi-input motion data set 72 may be combined with the image data in the image 124 to visually convey motion, acceleration, displacement, polarization, or some other sensed parameter in conjunction with structure.